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ABSTRACT

The Durham Education Improvement Program (EIP) seeks to develop new organizational patterns and instructional systems in ongoing classrooms which would foster the educational and social development of disadvantaged North Carolina children. A small-scale model school system (consisting of three schools in target areas and a laboratory school) was created to serve 200 to 300 children from ages 2 through 10. The overall strategy for the program's five-year plan is (1) development of new organizational patterns and procedures (2) introduction of new techniques of instruction to and through the laboratory facility to the target area schools (3) creation of a series of preschool classes (4) development of special teacher training procedures for use in target area ungraded primary and preschool classes. Effects of the program are to be evaluated by a series of tests given before and after each special intervention as well as by a series of intelligence and achievement tests administered over the full length of each child's involvement in EIP classes. Reports on several major research questions and on the results of EIP will be published during the next two years. (WY)

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Theme: Changing the Learning Patterns of the Culturally Different

The Durham Education Improvement Program *

The long range purposes of the Durham Education Improvement Program are the development of new organizational patterns and instructional systems in ongoing classrooms in Durham City and County which will foster the educational and social development of children whose families have been

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economically and socially restricted. Not only does the Durham EIP seek to introduce modern school practices which have been shown elsewhere to be beneficial, but it seeks to introduce new techniques, materials, and practices which are developed locally by EIP teachers and curriculum specialists.

Another purpose of the Durham EIP is to stimulate North Carolina school superintendents, principals, curriculum supervisors, teachers, school board members, and legislators concerned with educational problems to enter into a broad range of developmental activities in the public schools. The Durham EIP does not propose to suggest ultimate answers to the problems of economic and social deprivation but seeks to demonstrate a variety of alternatives which, in combination, will suggest ways in which school men and teachers in cooperation can continue the task of transforming public education in the southeastern region to overcome the cumulative undesirable effects of inadequate financial support of public schools and a history of separate schooling for blacks and whites.

In the role of stimulator, EIP is only one of a number of programs or agencies such as Head Start, Follow Through, the community action programs, the Learning Institute of North Carolina, the North Carolina Fund, and the North Carolina Comprehensive School Improvement Program which have devoted energies toward the improvement of schools and educational opportunity for all children in North Carolina.

The Five-Year Plan

The original proposal to the Ford Foundation for the Durham EIP projected the creation of a small scale school system in which approximately 200 to 300 children would be enrolled from ages 2 through 10. This small

scale school system would be created as a cooperative effort between the Durham City Schools, Durham County Schools, Duke University, North Carolina College, and Operation Breakthrough - the local community action agency. Two public schools in the City of Durham and one in the County were selected as target area schools since the children attending them came from geographical areas where low income families traditionally resided. In addition to the three target area schools, a fourth city school near Duke University was chosen as a laboratory facility. The City Schools had announced plans to close the school as a result of changing residential patterns in the City of Durham.

The overall strategy for the devleopment of the model school system called for the development of new organizational patterns, procedures, and techniques of instruction at the laboratory school with a concurrent introduction of tested school practices such as team teaching, ungraded instruction, programmed learning, and cross age grouping in the target area schools.

Plans also called for the creation of a series of preschool classes to enroll children from 2 through elementary school age. A special classroom for very young children was constructed on the school grounds of one of the target area schools and some available rooms in the basement of the adjacent school were also modified to accommodate preschool children. Children selected by random procedures among the preschool population residing in the three target areas were to be enrolled in classes in these facilities, and over the course of the five years were expected to enter the public schools in the three residential areas.

The effects of the special programs created for these children were to be evaluated by a series of tests given before and after each of the special interventions and, in addition, the overall effects of the EIP programs were to be evaluated by a series of intelligence and achievement tests administered over the full length of each child's involvement in EIP classes.

Basic Research Questions

EIP's research personnel have been concerned with several major questions:

1. What is the pattern of intellectual development of Durham's disadvantaged children - both black and white?
2. In what ways do girls display different patterns than boys?
3. Does intelligence develop at an even rate during the very early period of growth and development from age 2 through 10?
4. Do disadvantaged children show a steady decline in intellectual growth and development, or is their rate of development uneven?
5. At which chronological age does intervention by EIP have the greatest impact on the intellectual and language development of disadvantaged children?
6. What combination of interventions appears to be most effective in overcoming the debilitating effects of economic and social restrictions?

7. How might public school personnel and responsible laymen concerned about public education reorganize or restructure public education to compensate for the characteristic deficits of disadvantaged children?

Assumptions Used in Developing Specific Programs in the Durham EIP

Several basic assumptions have been made as a basis for the introduction of programs for children in ongoing EIP classrooms. The first assumption is that, in the absence of overt signs of organic abnormality such as mongoloidism or microcephaly or other specific organic or physiological defect, the children enrolled in EIP classrooms are biologically intact; that many or most of their differences in development are the result of variations in environmental stimulation, health care, nutrition, and social relations; and that changes introduced in their social and physical environment will bring about changes in intellectual, social, and physical development.

A second assumption is that the social learning theories of Bandura and Walters (1), Bijou and Baer (2), and B. F. Skinner (3) are relevant as sources of techniques which teachers can use in the classroom to bring about changes in the social behavior of children. It is further assumed that some of the major problems that disadvantaged children have in conventional public school classrooms, such as apathy, not paying attention, not following directions, peer interaction which disturbs others and disrupts the instructional program, and resistance to formalized instruction and conventional control techniques, can be overcome by the use of behavior modification techniques as proposed by Bandura, Bijou, Baer, and Skinner.

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The third set of assumptions used in EIP is based upon Piaget's work in tracing the intellectual development of children and the work of curriculum developers such as Taba (4) and Gagne (5). On the basis of research by these persons and others concerned with concept development and learning, EIP's classroom programs have introduced sequences of encounters with concrete materials and structured environments which are hypothesized to foster exploration, manipulation of physical objects to control sensory inputs in the derivation of concepts about reality, and the construction of products from raw materials available to the child in the classroom environment. The role of language as a means of fostering concept development and communication is emphasized in EIP classrooms. The assumption here is that as language becomes useful to the child in communicating with peers and adults, he enhances his own thought processes and conceptualization of reality. It is also assumed that he can, subsequently, more adequately convey to others the quality of his understanding and knowledge - a performance characteristic which is highly valued by school personnel and the middle class culture generally.

Performance Outcomes Expected as a Result of EIP Programs

Curricular practices in EIP's preschools and ungraded primaries are predicted to, first, increase the rate of intellectual development to approximate the IQ norms of the population of the United States as a whole, and secondarily, enhance language performance and school achievement in reading, writing, spelling, and mathematics to the point where the achievement of these children is equal to or above the average performance of

children across the United States generally. Such achievement would be assessed by the performance of these children on standardized measures such as the Illinois Test of Psycholinguistic Abilities and the Metropolitan Achievement Test Battery.

A third hypothesis is that the social performance of children who have participated in EIP classes would be superior to children who have not experienced EIP classes. It is specifically hypothesized that former EIP children in subsequent years will be more productively engaged in desirable classroom behavior and will exhibit fewer instances of misbehavior. It is expected that they will pay more attention to adult directions and instruction, and will exhibit better study habits and earn higher grades when compared to children from similar backgrounds who have not been exposed to EIP classroom programs.

Special Teacher Training Procedures Developed in EIP

As a result of the assumptions underlying EIP's programs as outlined in the preceding section, a number of procedures have been developed to bring about changes in classroom organization, instructional programming, and teacher-child relationships. Schedules have been developed (6) which define in comprehensive detail specific behaviors of children and teachers in classroom and other educational settings. By means of these specific descriptions of behavior and by the introduction of continuous monitoring of classroom process, it has been possible to define the characteristic behaviors of both children and teachers in EIP classrooms and to introduce specific treatment programs. Using guidelines for stimulating behavioral

change derived from the work of the social learning theorists, EIP teachers in cooperation with research technicians have been able to develop techniques which foster desirable behavior in children. Teachers have learned new ways of relating to children and children have learned to attend and become engaged in profitable social and independent activities. A relaxed, productive, and student relevant sequence of learning activities, within limits set by teachers, has been created within the EIP ungraded primaries.

Techniques of teacher training and curriculum organization learned in the laboratory school have been introduced in target area ungraded primaries as well as the preschools. In addition to organizational and instructional changes, new instructional materials have been developed for fostering language, speech, and motor development. These new materials are being evaluated by special studies with experimental and control groups.

Results Obtained in Terms of Changes in Development of Intelligence and Academic Achievement

The Durham EIP is now in its fourth year and currently enrolls 11 different groups of children of various ages in its target area classrooms and demonstration school. Changes in mental age and academic achievement for children who have been enrolled in EIP since the fall of 1965 are presented in Figure 1. The data are also given in Table 1.

These data are only suggestive since they represent only one group of children out of the eleven classes currently enrolled. However, they suggest that the mental abilities of these children have approached national norms and that their academic achievement has been above average when compared with normal grade expectations. A further point of interest is that these

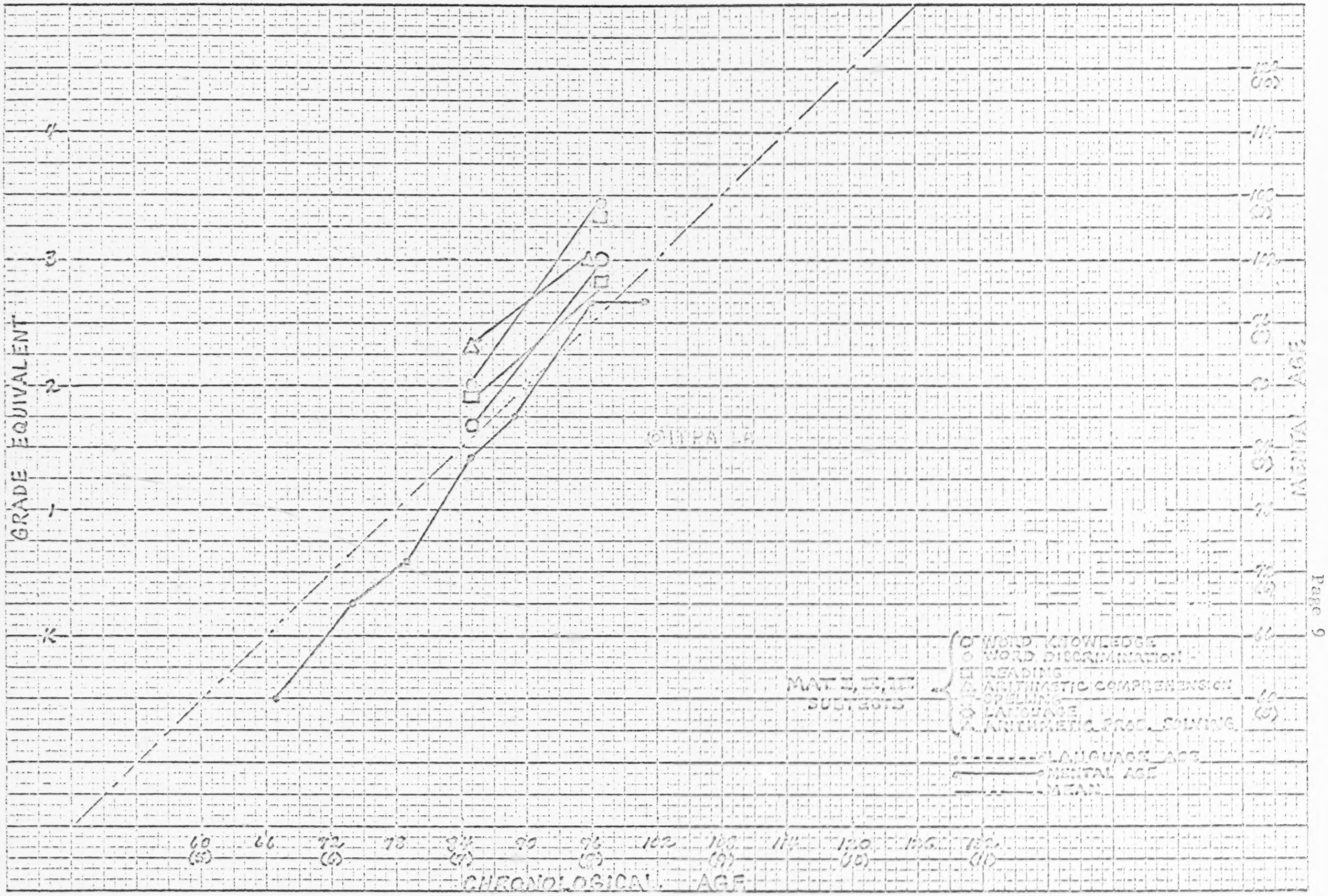

Figure 1. Changes in Mental Age and Academic Achievement for 17 Disadvantaged Children in EIP

Table 1

Changes in Mental Age and Academic Achievement
by Chronological Age for Seventeen Disadvantaged Children

	CA (in months)	MA (in months)	Grade Equivalent
Intelligence Test Data			
Stanford-Binet	67	60	
Stanford-Binet	74	69	
WISC (Full Scale)	79	73	
WISC (Full Scale)	85	83	
WISC (Full Scale)	89	87	
WISC (Full Scale)	96	98	
WISC (Full Scale)	101	98	
Achievement			
MAT Form I			
Word Knowledge	85		1.7
Word Discrimination	85		2.0
Reading	85		1.9
Arithmetic Comprehension	85		2.3
MAT Form II			
Word Knowledge	97		3.0
Word Discrimination	97		3.4
Reading	97		2.8
Arithmetic Comprehension	97		3.0
Spelling	97		3.3
Language Achievement			
ITPA	102	85	

achievement gains have been realized even though their overall language performance as measured by the Illinois Test of Psycholinguistic Abilities (ITPA) shows retardation of about a year and one half at age 8½.

Reading instruction in this group involved the Gattegno Words In Color approach supplemented by Sullivan and SRA programmed readers. Spelling, word knowledge, and word discrimination appeared to develop at a faster rate than reading comprehension.

Mathematics was taught by the Gattegno approach using Cuisenaire rods, supplemented by Suppes Sets and Numbers. Performance in mathematics as measured by the MAT showed a rapid initial gain with slower gains in the second year of mathematics instruction.

This group of children will go into conventional fourth grade public school classrooms in the fall of 1969. Their overall performance will be evaluated again in the spring of 1970.

Additional reports on the results of EIP programs will be published during the next two years.

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